

**REMARKS**

Claims 1-5 were pending in this application.

Claims 1-5 have been rejected.

No claims have been allowed.

Claims 1-5 have been amended as shown above.

Claims 6-20 have been added.

Claims 1-20 are now pending in this application.

Reconsideration of the claims is respectfully requested.

**I. CLAIM OBJECTIONS**

The Office Action objects to Claim 2 because it contains two dependent claims. The Office Action states that the second paragraph of Claim 2 has been renumbered as Claim 3 and that Claims 3 and 4 have been renumbered as Claims 4 and 5. The Applicants thank the Examiner for renumbering the claims. The Applicants agree with the Examiner's amendment and have shown the proper claim numbering above. The Applicants respectfully request withdrawal of the objection.

**II. 35 U.S.C. § 102 – Anticipation**

The Office Action rejects Claims 1-5 under 35 U.S.C. § 102(b) as being anticipated by Chung-Yu, "A 1.8GHz CMOS Quadrature Voltage-Controlled Oscillator (VCO) Using the Constant-Current LC Ring Oscillator Structure" ("Chung-Yu"). This rejection is respectfully

traversed.

A cited prior art reference anticipates the claimed invention under 35 U.S.C. § 102 only if every element of a claimed invention is identically shown in that single reference, arranged as they are in the claims. MPEP § 2131; *In re Bond*, 910 F.2d 831, 832, 15 U.S.P.Q.2d 1566, 1567 (Fed. Cir. 1990). Anticipation is only shown where each and every limitation of the claimed invention is found in a single cited prior art reference. MPEP § 2131; *In re Donohue*, 766 F.2d 531, 534, 226 U.S.P.Q. 619, 621 (Fed. Cir. 1985).

*Chung-Yu* recites a voltage-controlled oscillator (VCO). (*Page 378, Abstract*). The VCO includes two differential inverters (labeled “INV 1” and “INV 2”). (*Figure 4*).

Regarding Claim 1, *Chung-Yu* fails to anticipate a multiphase LC oscillator that includes multiple units, where each unit includes a “voltage-to-current converter” and “an LC oscillator.” The Office Action relies on the differential inverter of *Chung-Yu* as anticipating the “voltage-to-current converter” recited in Claim 1. However, *Chung-Yu* specifically recites that the differential inverters receive voltage signals as input and produce voltage signals as output. (*Page 379, Left column, First paragraph; Figure 4*). As a result, the differential inverters of *Chung-Yu* cannot anticipate the voltage-to-current converter recited in Claim 1.

Regarding Claim 4, *Chung-Yu* fails to disclose any voltage-to-current converter. As a result, *Chung-Yu* fails to anticipate the voltage-to-current converter recited in Claim 4. Also, the Office Action relies on a control voltage ( $V_C$ ) and a bias resistor ( $R_1$ ) of *Chung-Yu* as anticipating the “compensation means” recited in Claim 4. However, *Chung-Yu* explicitly states that the control voltage and bias resistor provide a reverse bias for a diode in the differential

inverter. (*Page 379, Left column, Last paragraph – Right column, First paragraph*). *Chung-Yu* lacks any mention of using the control voltage and bias resistor to “compensate for a phase shift” as recited in Claim 4.

Regarding Claim 5, *Chung-Yu* fails to anticipate using a voltage-to-current converter. *Chung-Yu* therefore fails to anticipate “converting [an] incoming signal into a current signal” as recited in Claim 5.

For these reasons, *Chung-Yu* fails to anticipate the Applicants’ invention as recited in Claims 1, 4, and 5 (and their dependent claims). Accordingly, the Applicants respectfully request withdrawal of the § 102 rejections and full allowance of Claims 1-5.

### III. NEW CLAIMS

The Applicants have added new Claims 6-20. The Applicants submit that no new matter has been added. The Applicants respectfully request entry and full allowance of Claims 6-20.

**SUMMARY**

For the reasons given above, the Applicants respectfully request reconsideration and allowance of pending claims and that this application be passed to issue. If any outstanding issues remain, or if the Examiner has any further suggestions for expediting allowance of this application, the Applicants respectfully invite the Examiner to contact the undersigned at the telephone number indicated below or at [wmunck@davismunck.com](mailto:wmunck@davismunck.com).

The Commissioner is hereby authorized to charge any additional fees connected with this communication or credit any overpayment to Davis Munck Deposit Account No. 50-0208.

Respectfully submitted,

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